

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/26/2010 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-3,8,9,12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta et al (US 5673128) and of Yamamoto et al (US 5341231) and of Tsunoda Tadashi (JP 06-027329) in view of Higuchi et al (US 5887964)

Regarding Claim 1,12,

Ohta et al discloses (Figure 4,6,9) a backlight assembly comprising: a light source (1a,1b) including a plurality of light generating parts that generate a first light; and a light guide plate (3) including i) side surfaces having a plurality of light incident surfaces (circled below) facing the light generating parts (1a,1b) ii) light exiting surface (5) and iii) a light reflecting surface (4) facing the light exiting surface (5), the first light

entering into the light guide plate (3) via the light incident surface to form a second light, the second light being reflected on the light reflecting surface (4) toward the light exiting surface (the surface of 3 that is closest to 5) to form a third light, the third light exiting from the light guide plate (3) via the light exiting surface (5), and a thickness of the light guide plate decreasing a direction from the light incident surface to a center of the light guide plate. And a receiving container for receiving the backlight assembly (11) a liquid crystal display panel (6) received in the receiving container (11), for controlling a transmissivity of the second light using a liquid crystal to display an image and a top chassis (9) combined with the receiving container (11) for fixing the liquid crystal display panel (6) to the receiving container.

Ohta et al does not disclose having a plurality of luminance-compensating patterns, luminance-compensating patterns are spaced apart from each other. And wherein a size and a density of the luminance-compensating patterns vary according to locations of the luminance compensating patterns on the light exiting surface; Wherein the light reflecting surface of the light guide plate is concave and has an arch shape that extends substantially from one of the light incident surfaces to another one of the light incident surfaces;

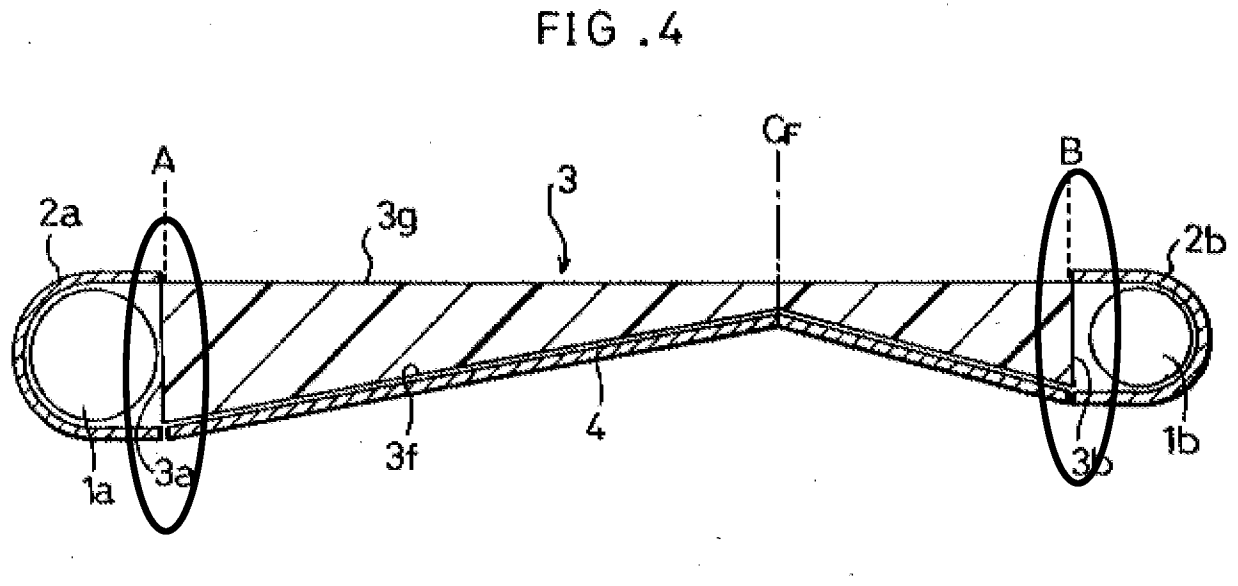
Yamamoto et al (Fig. 10) disclose the luminance-compensating patterns (161c) are spaced apart from each other.

Tsunoda Tadashi discloses (Drawing 8) wherein a size and a density of the luminance-compensating patterns (5,6) vary according to locations of the luminance compensating patterns on the light exiting surface. The patterns size are made larger in

the center of the light guide than the edges of the light guide. Also, the patterns are densely populated in the center of the light guide (7). [0004-0005]. Thus, the size and density of the luminance compensating patterns vary according to locations.

Higuchi et al (Fig. 13) discloses wherein the light reflecting surface (3) of the light guide plate (1) is concave and has an arch shape (seen curved) that extends substantially from one of the light incident surfaces to another one of the light incident surfaces (the edge of 1 close to L)

It would have been obvious to one of ordinary skill in the art to modify Ohta et al to include Yamamoto et al's luminance-compensating patterns (161c) are spaced apart from each other motivated by the desire provide a uniform illumination display (abstract) to further include luminance compensating patterns varying size and density according to locations motivated by the desire to provide a uniform luminosity in the light guide. [0005]. To also include Higuchi et al's light reflecting surface (3) of the light guide plate (1) is concave and arch shaped (seen curved) that extends substantially from one of the light incident surfaces to another one of the light incident surfaces (the edge of 1 close to L) motivated by the desire to provide an excellent characteristic from the viewpoint of the luminance level and angular characteristics (column 10, lines 12-20)



Regarding Claim 2,

In addition to Ohta et al, Yamamoto et al, Tsunoda Tadashi, and Higuchi et al as disclosed above, Ohta et al discloses (Figure 4,6,9) the light guide plate comprises first, second, third and fourth side surfaces (light guide 3 has 4 sides, 2 sides facing the light source (1a,b) and the two other are where 3g and 3f is pointing to), and the light source comprises first and second light generating parts disposed adjacent to the first side surface (1a,1b) and the second side surface.

Regarding Claim 3,

In addition to Ohta et al, Yamamoto et al, Tsunoda Tadashi, and Higuchi et al as disclosed above, Higuchi et al (Fig. 13) discloses the thickness of the light guide plate (1) decreases gradually to form an arch-shaped light reflecting surface.(3 is curved)

Regarding Claim 8,13,

In addition to Ohta et al, Yamamoto et al, Tsunoda Tadashi, and Higuchi et al as disclosed above, Ohta et al discloses (Figure 4,6,9) a first reflecting member (4) disposed under the light reflecting surface of the light guide plate (3), the first reflecting member (4) reflecting a third light leaked from the light reflecting surface toward the light exiting surface, (the surface of 3 that is closest to 5) the first reflecting member comprising a metal plate and a reflective substance formed on the metal plate and having the same contour as that of the light reflecting surface of the light guide plate (3).

Regarding Claim 9,

In addition to Ohta et al, Yamamoto et al, Tsunoda Tadashi, and Higuchi et al as disclosed above, Ohta et al discloses (Figure 4,6,9) a second reflecting member (2a) covering the light sources (1a) to reflect the first light generated from the light source toward the light guide plate, and the first and second reflecting members (Fig. 9 (4) being integrally formed with each other.

Regarding Claim 14,

In addition to Ohta et al, Yamamoto et al, Tsunoda Tadashi, and Higuchi et al as disclosed above, Ohta et al discloses (Figure 4,6,9) wherein a bottom face of the receiving container(10) has a same contour as that of the light reflecting surface of the light guide plate (3), a electronic component (8) being received in a receiving space under the bottom face of the receiving container.

Regarding Claim 15,

In addition to Ohta et al, Yamamoto et al, Tsunoda Tadashi, and Higuchi et al as disclosed above, Ohta et al discloses (Figure 4,6,9) wherein the receiving container (10)

has a same contour as that of the light reflecting surface of the light guide plate (3) and comprises a metal plate (reflector 4) and a reflective substance (4) formed on the metal plate (4), and the receiving container (10) reflecting a third light leaked from the light reflecting surface toward the light exiting surface.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable Ohta et al (US 5673128) and of Yamamoto et al (US 5341231) and of Tsunoda Tadashi (JP 06-027329) and of Higuchi et al (US 5887964) in view of Funamoto , Tatsuaki et al (EP 0607453 A1).

Regarding Claim 4,

Ohta et al, Yamamoto et al, Tsunoda Tadashi, and Higuchi et al as disclose everything as disclosed above.

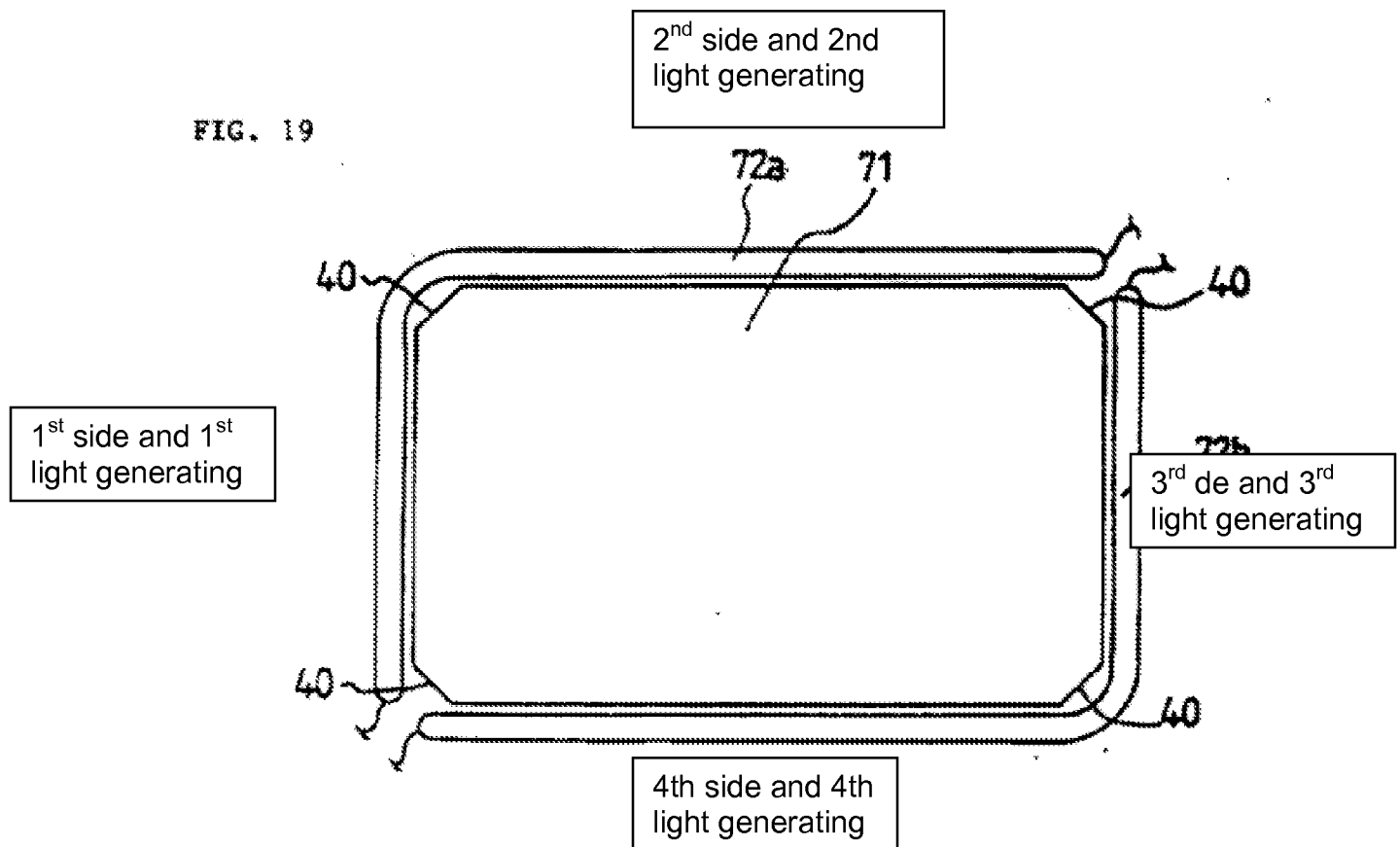
Ohta et al, Yamamoto et al, Tsunoda Tadashi, and Higuchi et al do not discloses the light source further comprises a third light generating part disposed adjacent to the third side surface of the light guide plate, and the first, second and third light generating parts are integrally formed to form a U-shape.

Funamoto , Tatsuaki et al (Fig. 19) discloses the light source further comprises a third light generating part disposed adjacent to the third side surface of the light guide plate, and the first, second and third light generating parts are integrally formed to form a U-shape (Figure 8)(column 9, rows 3-15) to save electric power. Also a fourth light generating part disposed adjacent to the fourth side surface (Fig. 19)

It would have been obvious to one of ordinary skill in the art to modify Ohta et al, Yamamoto et al, Tsunoda Tadashi, and Higuchi et al to include Funamoto , Tatsuaki et al's u shaped light source motivated by the desire to reinforce brightness and to use less amount of electric power, to further include the fourth light generating part disposed adjacent to the fourth side surface motivated by the desire to provide a uniform illumination high quality color device with high brightness with low power consumption (column 20, lines 1-18).

Regarding Claim 5,

In addition to Ohta et al, Yamamoto et al, Tsunoda Tadashi, Higuchi et al and Koike et al as disclosed above, Funamoto , Tatsuaki et al (Fig. 19) discloses the light guide plate (71) comprises a first side surface (shown below) a second side surface neighboring the first side surface, a third side surface facing the first side surface and a fourth side surface facing the second side surface and the light source comprises a first light generating part disposed adjacent to the first side surface a second light generating part disposed adjacent to the second side surface a third light generating part disposed adjacent to the third side surface, and a fourth light generating part disposed adjacent to the fourth side surface



Regarding Claim 6,

In addition to Ohta et al, Yamamoto et al, Tsunoda Tadashi, Higuchi et al and Funamoto , Tatsuaki et al as disclosed above, Ohta et al discloses (Figure 4,6,9) wherein the light reflecting surface has first, second, third and fourth curved faces, each of the curved faces having a predetermined curvature (all four sides of the reflector)

Regarding Claim 7,

In addition to Ohta et al, Yamamoto et al, Tsunoda Tadashi, Higuchi et al and Funamoto , Tatsuaki et al as disclosed above, Funamoto et al discloses (Fig. 19) the first and second light generating parts are integrally formed to form a first L-shaped lamp (72a) , and the third and fourth light generating parts are integrally formed to forms

a second L-shaped lamp (72b) to provide a high quality color display with high brightness from the illumination device.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta et al (US 5673128) and of Yamamoto et al (US 5341231) and of Tsunoda Tadashi (JP 06-027329) and of Higuchi et al (US 5887964) in view of Endo et al (US 5123077)

Regarding Claim 10,

Ohta et al, Yamamoto et al, Tsunoda Tadashi, and Higuchi et al as discloses everything as disclosed above.

Ohta et al, Yamamoto et al, Tsunoda Tadashi, and Higuchi et al does not discloses wherein each of the luminance-compensating patterns has a same size, and the light-compensating patterns are formed denser in a region disposed near a center of the light guide plate than in a region disposed near the light generating part.

Endo et al discloses (column 5, rows 63-37 to Column 6, rows 1-25) wherein each of the luminance-compensating patterns (4b) has a same size, and the light-compensating patterns are formed denser in a region disposed near a center of the light guide plate than in a region disposed near the light generating part.

It would have been obvious to one of ordinary skill in the art to modify Ohta et al, Yamamoto et al, Tsunoda Tadashi, and Higuchi to include Endo et al's luminance-compensating patterns (4b) has a same size, and the light-compensating patterns are formed denser in a region disposed near a center of the light guide plate than in a

region disposed near the light generating part motivated by the desire brighter at the center is suppressed and the light source ensures a more uniform brightness.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUCY P. CHIEN whose telephone number is (571)272-8579. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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